

REMARKS

Claims 1-9, 11-19, 27 and 28 are pending in the application. Claim 11 has been amended merely to correct a typographical error, and therefore, to place the claim in better form for consideration on appeal. Reconsideration of the claims, in light of the remarks below, is respectfully requested.

I. 35 U.S.C. § 102 - ANTICIPATION

Claims 14-19 and 28 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nozaki et al. (U.S. Pat. No. 4,677,289). Applicants respectfully traverse this rejection.

Applicants respectfully submit that Nozaki et al. does not teach (expressly or inherently) at least the following features recited in Claim 14:

- (1) *“a first dielectric layer between said first photo-detector element and said second photo-detector element;” and*
- (2) *“a second dielectric layer between said third photo-detector element and said fourth photo-detector element.”*

On Pages 2-3 of the Office Action, the Examiner contended that the “first dielectric layer” in Claim 14 is taught by layer 44G of Nozaki et al., and “the second dielectric layer” in Claim 14 is taught by layer 44IR of Nozaki et al. Applicants respectfully disagree with the Examiner. Layers 44G and 44IR of Nozaki et al. are described on col. 8, lines 35-41 as “transparent conductive layers and serve both as connection terminals for series-connecting photodiodes, and also as layers for transmitting the incident light to the underlying photodiodes.” As the Examiner is aware, a dielectric material is a substance that is a poor

conductor of electricity. Thus, conductive layers that serve to electrically-series connect photodiodes cannot be said to teach dielectric layers.

For at least this reason, Nozaki et al. fails to anticipate Applicants' invention as recited in Claim 14 (and its dependents). Accordingly, Applicants respectfully request that the Examiner withdraw the § 102 rejection of Claims 14-19 and 28.

In addition, with respect to dependent Claim 17, Applicants respectfully submit that Nozaki et al. does not teach (expressly or inherently) "*a color filter in an elevated relation with said first photo-detector element,*" as recited in Claim 17. On Page 8 of the Office Action, the Examiner remarked: "a 'color filter' is a general term describing the filtering of electromagnetic wavelengths of light and is not limited to the visible spectrum. ... Hence, the filter of Nozaki et al. is a color filter even though it is an IR filter." Applicants respectfully disagree with the Examiner.

Nozaki et al. specifically states: "One object of the invention is to provide a color sensor ... without the need of using various color filters." (Col. 1, lines 36-40; Col. 1, lines 57-60). Thus, it is apparent that the teachings of Nozaki et al. recognize a difference between color filters and IR filters, and Nozaki et al. expressly excludes color filters. Therefore, the IR filter in Nozaki et al. cannot be interpreted to include "color filters," since such an interpretation would be in opposition to the teachings of Nozaki et al. As a result, Nozaki et al. does not teach a "color filter," as claimed in Claim 17. For at least this additional reason, Nozaki et al. fails to anticipate Applicants' invention as recited in Claim 17 (and its dependents). Accordingly, Applicants respectfully request that the Examiner withdraw the § 102 rejection of Claims 17 and 18.

II. 35 U.S.C. § 103 - OBVIOUSNESS

Claims 1-9, 11-13 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nozaki et al. in view of Yokota et al. (UK Patent Application No. 2,166,289). Applicants respectfully traverse this rejection.

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP § 2142.

When a proposed modification or combination of the prior art would render the prior art invention unsatisfactory for its intended purpose or change the principle of operation of the prior art invention, there is no suggestion or motivation to make the proposed modification. As a result, the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP § 2143.01.

On Page 6 of the Office Action, the Examiner stated: "It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically isolate the top photo-detector element from the bottom photo-detector element as taught by Yokota et al.

in the sensor of Nozaki et al., to reduce electrical interference and increase individual detector sensitivity.” Applicants respectfully disagree.

The Nozaki et al. color sensor operates using “a plurality of photovoltaic cells, each having a different photosensing wavelength area and being electrically connected in series; a connection line electrically connected between both terminals of the cell group to form a closed circuit, and a sensing circuit for detecting a voltage across each photovoltaic cell and for evaluating color components of light incident on the color sensor... without the need of providing various color filters at the light receiving side.” (Col. 1, lines 47-60). The operation principle is further described in the circuit of Figure 1, showing electrically, serially-connected photodiodes, and in the structural models of Figures 2A, 2B, 4, 5 and 7, showing transparent conductive layers between photodiodes to electrically connect the photodiodes in series.

Modifying the Nozaki et al. color sensor to electrically isolate the photodiodes from each other would change the principle of operation of the Nozaki et al. color sensor. Thus, there is no motivation or suggestion to modify Nozaki et al., as the Examiner suggests, to electrically isolate the top photo-detector element from the bottom photo-detector element.

In addition, Applicants respectfully submit that Nozaki et al. in combination with Yokota et al. does not disclose or suggest “*a second two-color photodetector ... sensitive to a second total wavelength range different from said first total wavelength range,*” as claimed in Claim 1. One of the objects of Nozaki et al. is as follows: “since respective photodiodes are stacked one over another, it is possible to identify the color components of light incident on a small area, i.e., one kind of photosensing area when viewed in a planar plane.” (Col. 1, lines 64-68) Therefore, modifying Nozaki et al. to include a second two-color photo-detector that is sensitive to a second total wavelength range different from a first total wavelength range

that a first two-color photo-detector is sensitive to, as claimed in Claim 1, would render Nozaki et al. unsatisfactory for its intended purpose.

As a result, the Office Action fails to establish a *prima facie* case of obviousness against Claim 1 (and its dependents). Accordingly, Applicants respectfully request that the Examiner withdraw the § 103 rejection of Claims 1-9, 11-13 and 27.

Moreover, with respect to dependent Claim 11, Applicants respectfully submit that the combination of Nozaki et al. and Yokota et al. does not disclose or suggest “*a first color filter in an elevated relation with said first photo-detector element.*” On Page 8 of the Office Action, the Examiner remarked: “a ‘color filter’ is a general term describing the filtering of electromagnetic wavelengths of light and is not limited to the visible spectrum. ... Hence, the filter of Nozaki et al. is a color filter even though it is an IR filter.” Applicants respectfully disagree with the Examiner. For reasons discussed above in connection with Claim 17, the IR filter in Nozaki et al. cannot be said to teach a “color filter,” as claimed in Claim 11.

In addition, with respect to Claim 11, Applicants respectfully submit that Nozaki et al. in combination with Yokota et al. does not disclose or suggest “*said first color filter absorbing light within a third range of wavelengths and passing light within said first and second ranges of wavelengths, said second two-color photo-detector further comprising a second color filter in an elevated relation with said third photo-detector element of said second two-color filter, said second color filter absorbing light within either said first or second ranges of wavelengths, passing light within said third range of wavelengths and passing light within either said first or second ranges of wavelengths not absorbed by said second color filter,*” as recited in Claim 11. On Pages 6-7 of the Office Action, the Examiner stated “It would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide a second color filter on top of the second photo-detector

element (42G) absorbing light in the first range (blue) of wavelengths, passing light within said second range (green) of wavelength in the sensor of Nozaki et al. in view of Yokota et al., to remove any residual blue light not absorbed by the first photo-detector element (42B) to prevent its interference with the remaining three photo-detector elements, to decrease noise in the outputs of the remaining three photo-detector elements.”

Applicants respectfully disagree. For similar reasons as those discussed above in connection with Claim 1, modifying Nozaki et al. to include a second color filter on top of a second two-color photo-detector that absorbs light in a different wavelength range than a first color filter on top of a first two-color photo detector, as claimed in Claim 11, would render Nozaki et al. unsatisfactory for its intended purpose.

For at least these additional reasons, Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness against Claim 11. Accordingly, Applicants respectfully request that the Examiner withdraw the § 103 rejection of Claim 11.

Furthermore, with respect to Claims 12 and 13, Applicants respectfully submit that Nozaki et al. in combination with Yokota et al. does not disclose or suggest “*wherein said third photo-detector element is capable of accumulating charge upon reception of light within a third range of wavelengths and said fourth photo-detector element is capable of accumulating charge upon reception of light within a fourth range of wavelengths,*” as recited in Claim 12. Modifying Nozaki et al. to include third and fourth photo-detector elements capable of accumulating charge upon reception of light within third and fourth wavelength ranges would render Nozaki et al. unsatisfactory for its intended purpose for reasons similar to those discussed above in connection with Claim 11.

For at least these additional reasons, Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness against Claims 12-13.

Accordingly, Applicants respectfully request that the Examiner withdraw the § 103 rejection of Claims 12 and 13.


CONCLUSION

Thus, all grounds of rejection and/or objection are traversed or accommodated, and favorable reconsideration and allowance are respectfully requested. Should the Examiner have any further questions or comments facilitating allowance, the Examiner is invited to contact Applicant's representative indicated below to further prosecution of this application to allowance and issuance.

Respectfully submitted,

DAVIS MUNCK, P.C.

Dated: 1/8/04


Holly L. Rudnick
Registration No. 43,065

P.O. Drawer 800889
Dallas, Texas 75380
(Direct) (972) 628-3636
(Fax) (972) 628-3616
(Email) hrudnick@davismunck.com